



Proposal for a broad PFAS restriction

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Research Consortium, 11 May 2023

The broadest restriction proposal in EU history

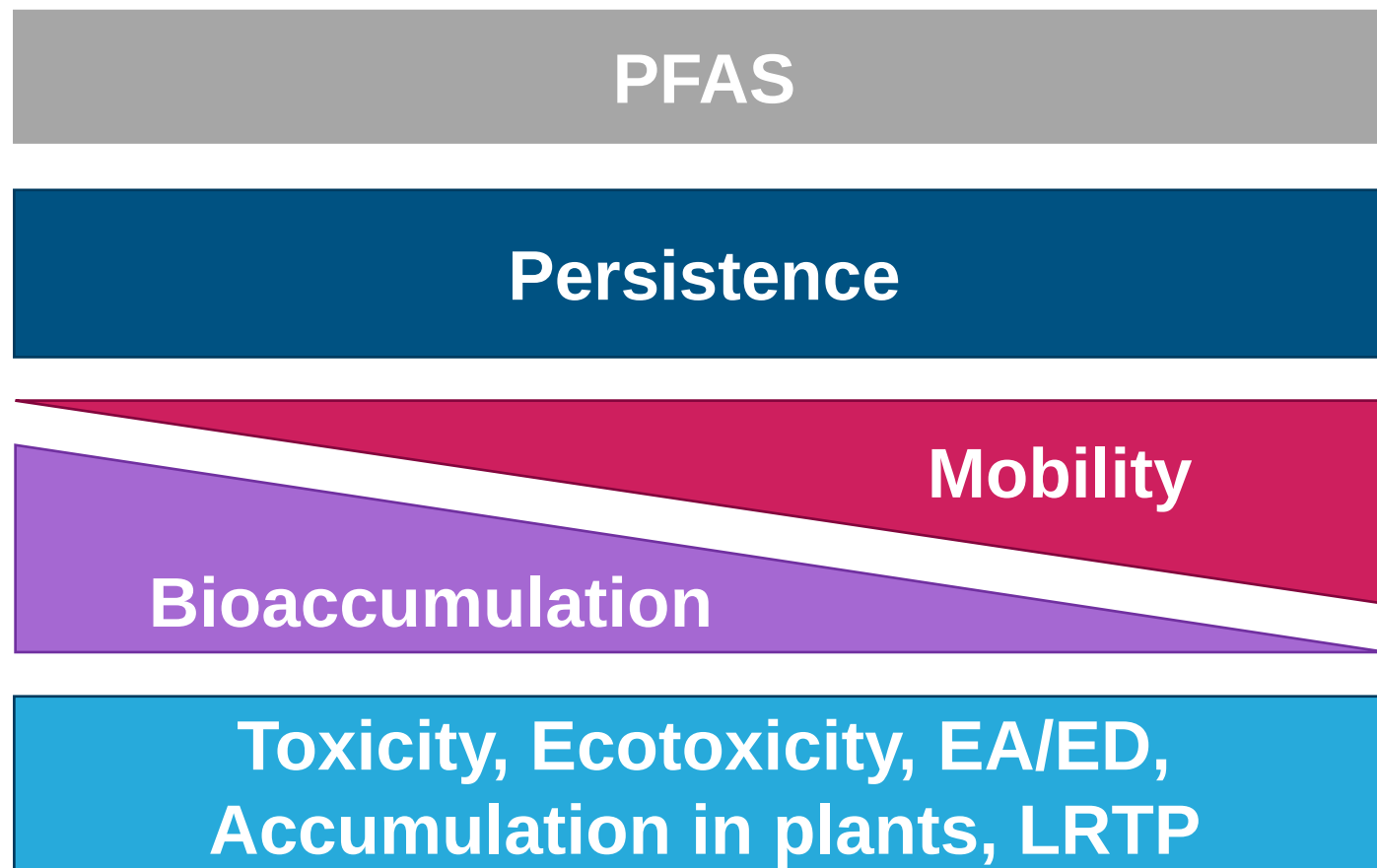
Roughly 10 000 PFASs



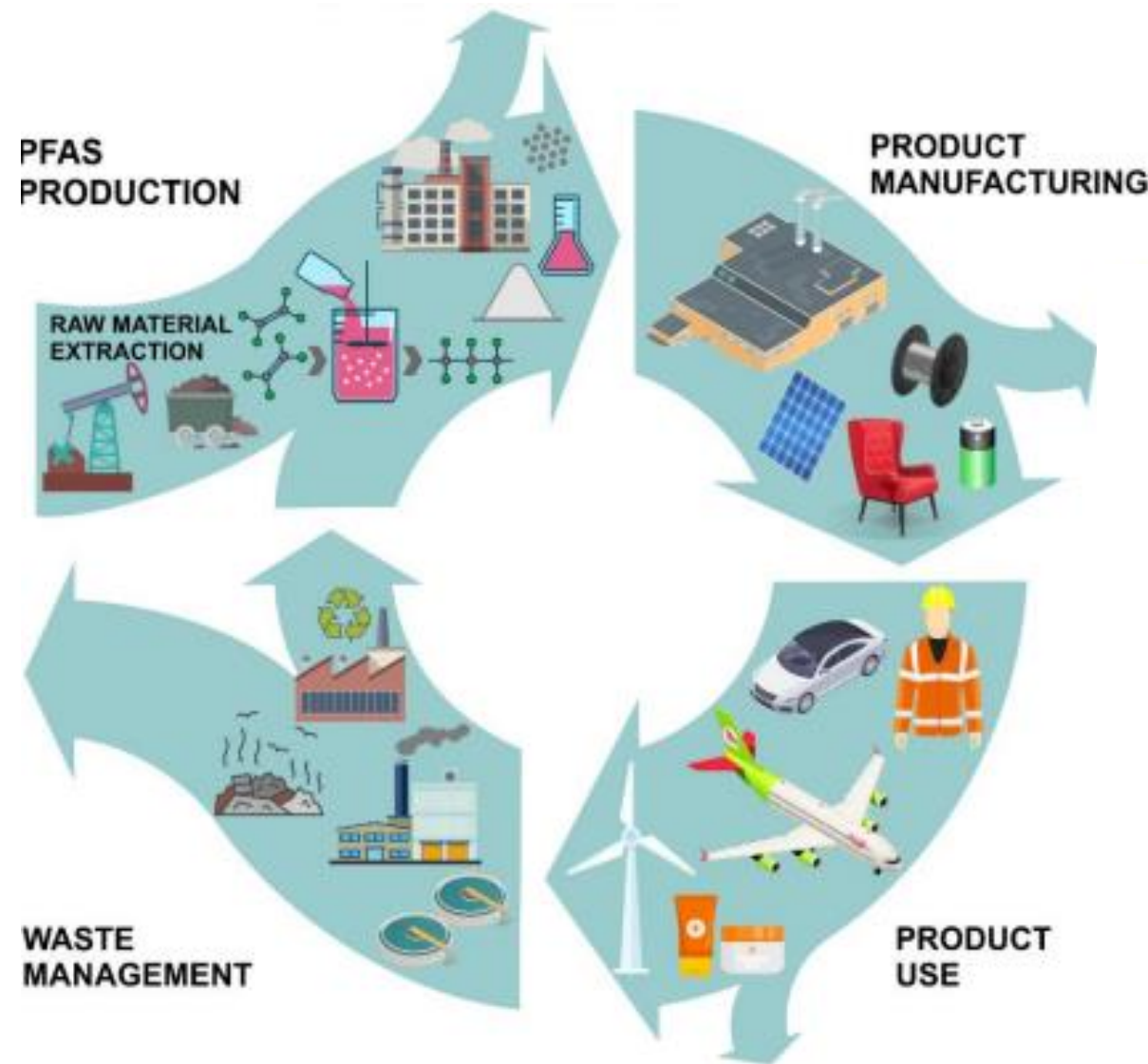
Why do PFASs need to be restricted?

- High volumes in a variety of applications
 - Emissions occur in all life cycle stages
 - Extremely difficult to degrade ("Forever chemicals")
 - Found everywhere in the environment and most people have PFAS in their bodies
 - Difficult to remove once they are released into the environment - levels will increase over time
 - Harmful effects on the environment and human health
-
- ➔ Uncontrolled risk from the use of PFAS in the EU
 - ➔ Need for EU-wide regulatory measure(s)

Hazard assessment



75 000 tonnes/year of emissions in the EEA



Tonnages and emissions

Application	Tonnage range	Emission range % emitted in manufacturing and use phase	Emission contribution Contribution to total emission [%]
Applications of fluorinated gases	> 10 000	5 – 25	> 50
Textiles, upholstery, leather, apparel & carpets	> 10 000	5 – 25	10 – 50
Medical devices	> 10 000	5 – 25	5 – 10
Manufacture	> 10 000	0 – 5	1 – 5
Food contact materials and packaging	> 10 000	0 – 5	0 – 1
Transport	> 10 000	0 – 5	0 – 1
Construction products	1 000 – 10 000	25 – 75	1 – 5
Electronics and semiconductors	1 000 – 10 000	5 – 25	0 – 1
Lubricants	1 000 – 10 000	5 – 25	0 – 1
Petroleum and mining	1 000 – 10 000	0 – 5	0 – 1
Energy sector	1 000 – 10 000	0 – 5	0 – 1
Metal plating and manufacture of metal products	100 – 1 000	0 – 5	0 – 1
Cosmetics	10 – 100	> 95	0 – 1
Consumer mixtures	10 – 100	75 – 95	0 – 1
Ski wax	0 – 10	25 – 75	0 – 1

The proposal - chemical definition

Column 1

Per- and polyfluoroalkyl substances (PFASs) defined as:

Any substance that contains at least one fully fluorinated methyl (CF_3 -) or methylene ($-\text{CF}_2-$) carbon atom (without any H/Cl/Br/I attached to it).

A substance that only contains the following structural elements is excluded from the scope of the restriction:

$\text{CF}_3\text{-X}$ or $\text{X-CF}_2\text{-X}'$,

where $\text{X} = -\text{OR}$ or $-\text{NRR}'$ and

$\text{X}' = \text{methyl } (-\text{CH}_3)$, methylene ($-\text{CH}_2-$), an aromatic group, a carbonyl group ($-\text{C}(\text{O})-$), $-\text{OR}''$, $-\text{SR}''$ or $-\text{NR}''\text{R}'''$;

and where $\text{R/R}'/\text{R}''/\text{R}'''$ is a hydrogen ($-\text{H}$), methyl ($-\text{CH}_3$), methylene ($-\text{CH}_2-$), an aromatic group or a carbonyl group ($-\text{C}(\text{O})-$).

= OECD PFAS definition 2021

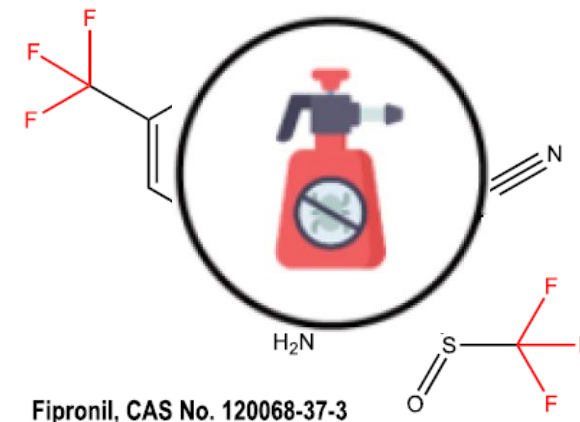
Over 10 000 substances covered! Some examples:



PTFE



HFP, CAS No. 116-15-4



The proposal - chemical definition

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A substance that only contains the following structural elements is excluded from the scope of the restriction:

CF_3 -X or X- CF_2 -X',

where X = -OR or -NRR' and

X' = methyl ($-\text{CH}_3$), methylene ($-\text{CH}_2$ -), an aromatic group, a carbonyl group ($-\text{C}(\text{O})-$), -OR'', -SR'' or -NR''R''';

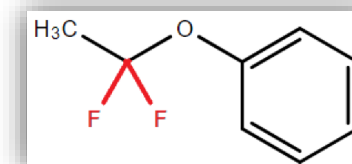
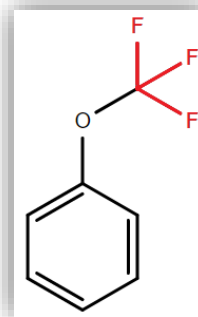
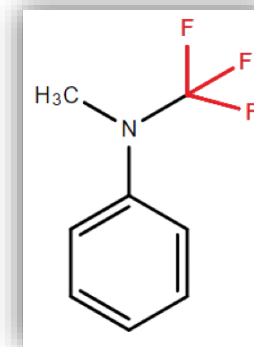
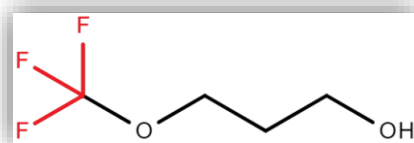
and where R/R'/R''/R''' is a hydrogen ($-\text{H}$), methyl ($-\text{CH}_3$), methylene ($-\text{CH}_2$ -), an aromatic group or a carbonyl group ($-\text{C}(\text{O})-$).

A few specific types of PFAS can be completely degraded in the environment. These are therefore excluded from the scope:

CF_3 -O- / CF_3 -N<

- CF_2 -O- / - CF_2 -N<

Examples:



Restriction Options assessed (RO)



RO1

Full ban of all uses

- Transition period: 18 months

Restriction Options assessed (RO)



RO2

Ban with use-specific derogations

- Transition period: 18 months
- Duration of derogation:
 - 5-years
 - 12-years
- Time-unlimited derogations (specifically justified)
 - Active substances in biocidal products, plant protection products and pharmaceuticals
 - Refrigerants in HVACR-equipment in buildings where national safety standards and building codes prohibit the use of alternatives
 - Calibration of measurement instruments and as analytical reference materials

Proposed restriction conditions - derogations

Two standard derogation timeframes chosen

Examples:

**Food contact materials
for industrial food and feed
production**

Alternatives under development
but not available at entry into
force

5 years

**Implantable medical
devices**

Identification, development
and certification of
alternatives needed

12 years

Proposed restriction

Ban on manufacture, use and placing on the market



- As substances on their own
 - As a constituent
 - A mixture
 - An article
- } ≥ 25 ppb for any PFASs
} ≥ 250 ppb for sum of PFASs
} ≥ 50 ppm* for PFASs

*If total fluorine exceeds 50 mg F/kg the manufacturer, importer or downstream user shall upon request provide to the enforcement authorities a proof for the fluorine measured as content of either PFASs or non-PFASs.



Consequences for emissions 2025-2055

If no action is taken:

- Use of PFASs in the sectors investigated: 49 million tonnes
- Release of PFASs during manufacture and use: 4.4 million tonnes
- The difference is the PFASs that goes to the waste stream. These emissions are not quantified.



Consequences for emissions 2025-2055

Ban is decided in 2025 with an 18-month transition period (RO1):

- Emissions (production and use): 0.2 million tonnes (during the transition period)
- **Reduction by 95%**



Consequences for emissions 2025-2055

Ban with time-limited derogations (RO2):

- Emissions will be higher than in RO1
- Calculations are in progress

**Now you can contribute with
information to the proposal
for a broad PFAS ban in EU.**

Next steps

- Consultation is ongoing until 25 September
- The proposal is evaluated by the scientific committees (RAC and SEAC) of EU's chemicals agency ECHA
- 60-day consultation on draft opinion from SEAC
- The proposal and opinions are sent to the Commission
- The member states vote

[Submitted restrictions under consideration - ECHA
\(europa.eu\)](https://eucha.europa.eu)